CLAIMS

1. A method for controlling an engine airflow, the engine having at least one cylinder, the engine also having an intake manifold and an outlet control device for controlling flow from the intake manifold into the cylinder, comprising:

generating a desired flow into the cylinder; and

adjusting the outlet control device to provide said desired flow into the cylinder.

2. The method recited in Claim 1 wherein the outlet control device is a variable cam timing system.

3. The method recited in Claim 1 wherein the outlet control device is a swirl control valve.

4. The method recited in Claim 1 wherein the outlet control device is a variable valve timing system.

5. The method recited in Claim 1 wherein said desire flow is generated from an operator command.

6. The method recited in Claim 1 wherein said adjusting step provides said desired flow into the cylinder faster than would be possible by adjusting an inlet control device for controlling flow entering the manifold.

7. A method for controlling an engine airflow, the engine having at least one cylinder, the engine also having an intake manifold and an outlet control device

for controlling flow from the intake manifold into the cylinder and an inlet control device for controlling flow into the intake manifold, comprising:

generating a desired cylinder air amount; and

adjusting both the inlet control device and the outlet control device to provide said desired cylinder air amount.

8. A method for controlling an engine airflow, the engine having at least one cylinder, the engine also having an intake manifold and an outlet control device for controlling flow from the intake manifold into the cylinder, comprising:

generating a desired engine torque;

generating a desired cylinder air charge amount based on said desired engine torque; and

changing the outlet control device to provide said desired cylinder air charge amount and thereby provide said desired engine torque.

9. A method for controlling an engine airflow, the engine having at least one cylinder, the engine also having an intake manifold and an outlet control device for controlling flow from the intake manifold into the cylinder, comprising:

generating a desired change of engine torque;

generating a desired cylinder air charge amount based on said desired change of engine torque; and

changing the outlet control device to provide said desired cylinder air charge amount and thereby cause a change of engine torque.

10. The method recited in Claim 9 wherein the engine further comprises an inlet control device, with said change of engine torque occurring faster than possible by changing only said inlet control device.

11. The method recited in Claim 10 wherein said change of engine torque is sustained by changing said inlet control device based on an amount of change of the outlet control device.

12. A method for controlling an engine torque, the engine having at least one cylinder, the engine also having an intake manifold and an outlet control device for controlling flow from the intake manifold into the cylinder and an inlet control device for controlling flow into the intake manifold, comprising:

generating a desired engine torque; and

changing both the inlet control device and the outlet control device to provide said desired engine torque

13. The method recited in Claim 12 wherein said changing step provides said desired engine torque faster than would be possible by changing only the inlet control device.

14. The method recited in Claim 12 wherein said changing step further comprises:

determining a desired air amount based on said desired engine torque;

determining an air amount error based on said desired air amount and an actual air amount;

adjusting both the inlet control device and the outlet control device based on said air amount error when torque is to be controlled faster than by using the inlet control device alone; and

adjusting the inlet control device based on said air amount otherwise.

15. The method recited in Claim 12 wherein said changing step further comprises:

determining a desired air amount based on said desired engine torque;

determining an air amount error based on said desired air amount and an actual air amount;

adjusting both the inlet control device and the outlet control device based on a high pass filtered version of said air amount error; and

adjusting the inlet control device based on based on a low pass filtered version of said air amount error.

16. The method recited in Claim 12 wherein said changing step further comprises:

determining a desired air amount based on said desired engine torque;

determining an air amount error based on said desired air amount and an actual air amount;

determining an outlet control device setpoint error;

adjusting the inlet control device and the outlet control device to affect flow in similar directions in response to said air amount error; and

adjusting the inlet control device and the outlet control device to affect flow in opposite

directions in response to an outlet control device setpoint error.

17. The method recited in Claim 15 wherein said adjusting step further comprises the step of determining an intermediate inlet control device setpoint and an intermediate outlet control device setpoint in response to said air amount error, with said intermediate inlet control device setpoint and said intermediate outlet control device setpoint further determined so that manifold pressure is relatively constant.